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THIS PAPER CONTAINS the descriptions of a number of new species of *Microcoelia* and *Angraecopsis*, two new combinations and some new records. The type specimens of the new species are all in the Kew Herbarium.

Nervilia petraea (*Afzelius ex Persoon*) *Summerhayes comb. nov.*

Arethusa petraea Afzelius ex Swartz in Kongl. Vetens. Acad. Handl. Stockh. 21 (1800) 230, *nomen tantum* — Afzelius ex Persoon Synops. Pl. 2 (1807) 512, descr. *Pogonia Thouarsii* Rolfe in Dyer Fl. Trop. Afr. 7 (1897) 187, non Blume.

Nervilia Afzelii Schlechter in Engl. Bot. Jahrb. 45 (1911) 402 — Summerhayes in Hutchinson & Dalziel Fl. West Trop. Afr. 2 (1936) 420.

From Persoon's description it is evident that he was dealing with the same plant as that referred to *Pogonia Thouarsii* Bl. by Rolfe and later separated by Schlechter as *Nervilia Afzelii*. In each case the specimen collected by Afzelius in Sierra Leone is the only one cited. *N. petraea* is the only African species with hair-like outgrowths on the apical part of the lip, which is also somewhat lacerate in front. It has since been found in other parts of West Africa and in Uganda.

Bulbophyllum Josephi (*Kuntze*) *Summerhayes*
comb. nov.

Bulbophyllum aurantiacum Hooker filius in Journ.
Linn. Soc. Lond. Bot. 7 (1864) 219, non F. Mueller.
Phyllorchis Josephi Kuntze in Rev. Gen. Pl. (1891)
676.

Bulbophyllum Gustavi Schlechter in Fedde Repert.
Spec. Nov. 9 (1911) 165.

Although the generic name *Bulbophyllum* Thouars is now conserved against *Phyllorchis* Thouars, this was not the case when Kuntze proposed the new epithet *Josephi* on transferring *B. aurantiacum* Hook.f. to *Phyllorchis*. The epithet is therefore quite legitimate and must be used for the species if it is retained in *Bulbophyllum*. Schlechter evidently overlooked this when he proposed the new epithet *Gustavi* many years later.

Microcoelia (§ **Eu-microcoelia**) **corallina** *Summerhayes* sp. nov.; affinis *M. Hirschbergii* Summerh. et *M. Perrieri* (Finet) Summerh.; ab illa florum colore, sepalis brevioribus latioribusque lateralibus valde obliquis, labello orbiculari nec elliptico, calcaris apice magis inflato, viscidio elliptico; ab hac inflorescentiis multo brevioribus floribus densioribus, labello sessili lobis lateralibus nullis, sepalis uninerviis obtusis apiculatis distinguitur.

Herba pusilla, epiphytica, aphylla; caulis brevissimus, circiter 1 cm. longus, radices crassiusculas 2–3.5 mm. diametro flexuosas simplices vel pauciramosas glabras densissime emittens. *Inflorescentiae* erectae vel adscendentes, simpliciter racemosae, 1–2.5 cm. longae, fere ad basin dense multiflorae, basi cataphyllis imbricatis obtusis vel acutis instructae; bracteae circiter 1 mm. distantes, lanceolatae, acuminatae, 1–1.5 mm. longae. *Flores* patentes, albi, nitentes, corallino-roseo notati; pedicellus

cum ovario 4–6 mm. longus. *Sepalum* intermedium ovato-ellipticum, apiculatum, vix 2.5 mm. longum, 1.5 mm. latum; sepala lateralia valde obliqua, ovata, apiculata, plus 2.5 mm. longa, 1.7 mm. lata. *Petala* elliptico-oblonga, apice subtruncata, apiculata, basi subito angustata, marginibus sinuosis, sepalo dorsali aequilonga, 1.4 mm. lata; omnia tepala uninervia, saccis crystalliferis magnis instructa. *Labellum* sessile, orbiculare, apice retusum, basi columnam levissime amplexens, 2.8 mm. longum et latum, valde concavum; calcar dependens, dimidio inferiore cylindricum, superiore anguste ovoideo-inflatum, 5 mm. longum. *Columna* brevissima, crassissima, apice \pm truncata, androclinio leviter excavato, reclinato; anthera duplo latior quam altior, rotundata; polinia oblique ovoideo-pyriformia, fere 0.5 mm. longa, stipite uno subspathulato-ligulato leviter sigmoideo 0.4 mm. longo, viscidio transverse elliptico 0.2 mm. lato; rostellum breviter productum, obtusum.

TANGANYIKA TERRITORY: Luengera Valley, N. of Korogwe, at Magoma, 450 m. alt., epiphytic on isolated tree in very little shade, Dec. 1942, Native Collector; comm. *W.M. & R.E. Moreau 448*. "Flower glistening white with coral-pink column, spur, central line on sepals and petals and spot at base of labellum; no scent."

This charming little species very closely resembles *M. Hirschbergii* Summerh. in general habit, especially the very dense tuft of smooth grey roots, and also in the general structure of the flower. In details, however, there are numerous differences, and the color of the flowers is very different, *M. Hirschbergii* having two brown spots at the base of the lip, the flowers being otherwise pure white. A striking feature of *M. corallina* is the presence of large crystal-containing sacs in the tepals especially near both sides of the central nerve.

Microcoelia (§ **Eu-microcoelia**) **ericosma** *Summerhayes* sp. nov.; affinis *M. Guyoniana* (Reichb.f.)

Summerh. a qua radicibus tenuioribus magis ramosis, floribus crebrioribus fragrantibus, tepalis latioribus obtusioribusque differt.

Herba epiphytica, aphylla; caulis brevis vel brevissimus, usque ad 4 cm. longus, 2–4 mm. diametro, apice cataphyllis scariosis lanceolatis acuminatis arcte imbricatis vestitus, radices numerosas flexuosas multo ramosas 1–2 mm. diametro glabras emittens. *Inflorescentiae* erectae vel suberectae, simpliciter racemosae, 4–9 cm. longae, densiuscule multiflorae; pedunculus 1–2.5 cm. longus, vaginis 4–5 obtusis instructus, ut rhachis pluriangulatus vel sulcatus; bracteae 1–3 mm. distantes, lanceolatae, acutissimae vel acuminatae, circiter 1 mm. longae. *Flores* patentes vel erecto-patentes, albi, calcar apice carnosum, suaveolentes; pedicellus cum ovario 2–3 mm. longus. *Sepala* elliptica, rotundata vel brevissime apiculata, basi angustata, lateralia leviter obliqua, 2.4–3.4 mm. longa, 1.3–1.75 mm. lata, uninervia. *Petala* late elliptica, rotundata, basi angustata, 2.5–3.25 mm. longa, 1.3–1.85 mm. lata, uninervia. *Labellum* ellipticum vel oblongo-ellipticum, apice rotundatum vel leviter emarginatum, valde concavum, 2.4–3.3 mm. longum, 1.3–1.6 mm. latum, trinervium; calcar ex ore latiusculo incurvatim conicum, dimidio apicali cylindricum, obtusum, 2.5–3 mm. longum. *Columna* brevis, crassa, apice truncata, androclinio leviter excavato reclinato; anthera late subhemisphaerica, antice breviter producta, truncata; pollinia ovoideo-sphaerica, 0.4 mm. longa, stipite uno ligulato superne subspathulato-dilatato leviter sigmoideo 0.4–0.6 mm. longo, viscidio quadrato antice latiore truncato 0.3–0.4 mm. longo; rostellum breviter deorsum productum, latum.

TANGANYIKA TERRITORY: Kilimanjaro, Marangu, epiphytic on large tree, Nov. 1941, *Forest Guard*; comm. *W. M. & R. E. Moreau* 105. "Flower white, tip of spur and pedicel pale pink, anther yellow; scent like heather"; same locality, Dec. 1932, *Geilinger* 4207; Amani,

Bomole, 907 m. alt., on tree at edge of rain forest, Dec. 1941, *Moreau 111* (TYPE). "Flower white including pedicel, only extreme tip of spur flesh pink, anther deep yellow; diurnal scent resembling Ling"; Amani, 750 m. alt., epiphytic on *Parinari* sp., Dec. 1941, *Moreau 112*. "Flower white, pedicels and tip of spur yellowish flesh-coloured, scented."

A characteristic member of sect. *Eu-microcoelia* only to be distinguished from some other species by careful examination. The distinguishing features are the heather-scent, in allusion to which the specific epithet is given, the broad and obtuse constantly 1-nerved tepals which are devoid of colored or thickened median band and are almost devoid of crystal-containing sacs, and the rather slender much branched roots. It is evident that there are a number of species closely allied to *M. Guyoniana* (Reichb.f.) Summerh., differing in combinations of rather minute but, I think, quite significant characters. Whether these are true species or only local geographical races or varieties of one widely distributed species can only be decided when much more material is available.

Microcoelia (§ **Eu-microcoelia**) **obovata** *Summerhayes* sp. nov.; affinis *M. Guyoniana* (Reichb.f.) Summerh. a qua radicibus crassioribus dense papillois, floribus duplo majoribus, labelli lamina quam calcaribus plus duplo longiore facile distinguenda.

Herba epiphytica, aphylla; caulis brevissimus circiter 1 cm. longus, apice cataphyllis numerosis scariosis acutis dense imbricatis coronatus, radices fere simplices crassas 2–4 mm. diametro dense papillosas emittens. *Inflorescentiae* erectae vel adscendentes, simpliciter racemosae, 5–9 cm. longae, fere ad basin laxiuscule 5–30-florae; rhachis teres vel leviter angulata; bracteae 3–5 mm. distantes, e basi vaginanti triangulari-ovatae, acutae, 1–2 mm. longae. *Flores* suberecti, albi, nitentes, calcaris apice et columna aurantiacis; pedicellus cum ovario circiter 4–5 mm. longus. *Sepalum* intermedium lanceolato-

oblongum, apiculatum, 5 mm. longum, fere 2 mm. latum; sepala lateralia praesertim prope basin obliqua, oblonga, apiculata, 5.5 mm. longa, fere 2 mm. lata; omnia sepala trinervia. *Petala* leviter oblique oblanceolato-oblonga, acuta, 5.25 mm. longa, 2–2.25 mm. lata; sepala et petala saccis crystalliferis distinctis instructa. *Labellum* late obovatum, apice rotundatum leviter retusum apiculo interjecto, 7.5–8 mm. longum, circiter 5.25 mm. latum; calcar conico-cylindricum e basi latiuscula sensim angustatum apice obtusum, leviter incurvatum, circiter 3.5 mm. longum. *Columna* crassa, brevis, 1 mm. alta, androclinio leviter excavato; anthera subhemisphaerica, antice breviter producta retuse truncata; pollinia reniformi-pyriformia, vix 0.5 mm. longa, stipite uno ligulato sigmoideo, viscidio anguste oblongo-elliptico 0.4 mm. longo; rostellum deorsum productum, deltoideum, viscidio amoto fere ad basin bipartitum, 0.5 mm. longum.

TANGANYIKA TERRITORY: Luengera Valley, north of Korogwe, near Magoma, 450 m. alt., epiphytic on small tree in grassland, Dec. 1942, Native collector; comm. *W. M. & R. E. Moreau 445A*. "Flowers glistening white, column and tip of spur orange; no scent."

This interesting species agrees completely with section *Eu-microcoelia* in the column structure and relatively short spur but possesses an exceptionally large lip, thus making the flowers much larger than in the other species of the section. The roots are very stout and densely covered with erect hyaline papillae which give the surface a curious matt appearance. *M. Guyoniana* (Reichb.f.) Summerh. is probably the nearest relative but that species has more slender and smooth roots, and flowers about half the size.

Among a collection of spirit specimens of leafless *Angraecoids* received recently from Mr. W. J. Eggeling of the Uganda Forestry Service, are several new records for that country.

Microcoelia caespitosa (*Rolfe*) *Summerhayes* in Hutchinson & Dalziel Fl. West Trop. Afr. 2 (1936) 454, et in Bot. Mus. Leaflet. Harv. Univ. 11 (1943) 151.

UGANDA: Bunyoro, Budongo Forest, Siba area, fl. Sept. 1943, *Eggeling* 5238.

This species has previously not been found farther east than Eala in the Belgian Congo, but it is evidently spread throughout the Equatorial rain-forest region.

Microcoelia microglossa *Summerhayes* in Hutchinson & Dalziel Fl. West. Trop. Afr. 2 (1936) 454, et in Bot. Mus. Leaflet. Harv. Univ. 11 (1943) 147.

UGANDA: Bunyoro, Budongo Forest, fl. Oct. 1943, *Eggeling* 5450.

As this species was known only from Southern Nigeria the above gathering records an extensive increase in its known geographical range. It is probable that it also occurs in the Belgian Congo.

Encheiridion macrorrhynchium (*Schlechter*) *Summerhayes* in Bot. Mus. Leaflet. Harv. Univ. 11 (1943) 162.

UGANDA: Bunyoro, Budongo Forest, fl. March 1943, *Eggeling* 5213.

This again represents a considerable extension of the range of the species, the most easterly location known previously being in the Gabon.

The excellent state of preservation of the material enables me to correct some of my opinions and statements in the reference cited above. In the *Eggeling* material the true side-lobes of the lip are clearly developed on the outside of the triangular calli, although these are adnate to them. The side-lobes are transversely rectangular-elliptical, very broad (approximately 2 mm. broad between the base of the column and the claw of the middle lobe), very short, and rounded-truncate.

The stipes of the pollinarium can be seen to be articu-

late with the narrow ligulate viscidium; in the upper part it is very fleshy and rounded-triangular in section, the widest flattened surface resting on the rostellum and androclinium. The two pollinia are attached by threads to the centre of the more or less truncated apex.

Angraecopsis breviloba *Summerhayes sp. nov.*; ab *A. parviflora* (Thou.) Schltr. foliis minoribus, inflorescentiis brevioribus dense multifloris, petalis liberis triangulari-lanceolatis, labelli lobis lateralibus ad dentes redactis, calcaris satis brevioris valde inflato distinguenda.

Herba epiphytica nana; caulis brevissimus, circiter 1 cm. longus, radices numerosissimas flexuosas simplices applanatas circiter 1.5–3 mm. latas dense emittens. *Folia* pauca, cito decidua, ligulata, usque ad 3 cm. longa et 5 mm. lata, apice obtusa brevissime bilobulata, obscure viridia. *Inflorescentiae* patentes vel adscendentes, usque ad 7 cm. longae, dense multiflorae; pedunculus 1–2 cm. longus, vaginis paucis instructus; rhachis flexuosa, angulata; bracteae 2–4 mm. distantes, arcte vaginantes, obtusae vel acutae, 1–2.5 mm. longae. *Flores* secundi, patentes vel adscendentes, pallide virides; pedicellus cum ovario circiter 4 mm. longus. *Sepalum* intermedium \pm recurvatum, oblongo-lanceolatum, subacutum vel obtusum, 3–4.5 mm. longum, 1–1.5 mm. latum; sepala lateralia et parallela porrecta, e basi angustata oblique curvatum lanceolata, acuta, 4–5.5 mm. longa, 1–1.5 mm. lata. *Petala* libera, oblique triangulari-lanceolata, acuta, 2.75–4 mm. longa, prope basin 1–1.5 mm. lata; omnia tepala trinervia. *Labellum* leviter incurvatum, dimidio inferiore breviter trilobatum, totum 3.75–4.5 mm. longum; lobus intermedius carnosus-subulatus, 2.5–3 mm. longus; lobi laterales dentiformes, subacuti, carnosi; calcar dependens vel leviter incurvatum, e basi angusta valde inflatum, 4.25–4.75 mm. longum, circiter 1 mm. diametro. *Col-*

umna subteres, truncata, 0.65–1 mm. longa, androclinio leviter excavato; anthera hemisphaerica, antice truncata; pollinia ovoideo-globosa, 0.5 mm. longa, stipitibus duobus genuflexis apice conniventibus, viscidio communi oblongo postice leviter retuso subtus concavo 0.6 mm. longo; rostellum leviter productum, porrectum, viscidio amoto bilobum, lobis obtusis. *Capsulae* ellipsoideae vel anguste pyriformi-ellipsoideae, 7–9 mm. longae, 2.5–4 mm. diametro, cum pedicello 2 mm. longo.

KENYA COLONY: Ngong, near Nairobi, on forest trees, May 1934, *C. van Someren*, Coryndon Mus. No. 3653; Tana River basin, steppes of the Thika-thika, July 1893, *Gregory*.

TANGANYIKA TERRITORY: Mondul, W. of Arusha, 1800 m. alt., on bole of tree 30 ft. from ground, May 1942, *Moreau 304* (TYPE); Mbulu, on bole of forest tree 12 ft. from ground, June 1942, *Moreau 304 A*; Kilimanjaro, Marangu, 1350 m. alt., on tree in river rain forest, in fruit, Nov. 1941, *Moreau 107*.

This species and the allied *A. tenuicalcar* Summerh. and *A. amaniensis* Summerh. are characterised by the nature of the pollinarium in which there is a single oblong viscidium to which the pollinia are attached by short stipites which arise close to one another, are then bent outward rather like knees, and converge again to approach one another at their apices where the pollinia are attached. So far, only *A. parviflora* (Thou.) Schltr.) has been recorded as possessing a common viscidium to the two stipites, but in this species the pollinarium is otherwise very different. *A. parviflora*, however, has the petals broadly triangular with the anticous margin united to the dorsal sepals and a trilobed lip with quite long lateral lobes.

A. breviloba, although lacking some of the more characteristic *Angraecopsis* characters, e.g. the petals as described above, seems correctly referred to the genus on account of the general habit and small leaves, the curious subspathulate-lanceolate lateral sepals held forward in a parallel manner on each side of the lip, the trilobed lip

and the column and rostellum structure. The petals are similar to those of *A. tridens* (Lindl.) Schltr. but the anticus margins are not quite so dilated as in that species. In none of the species so far described is the spur so swollen as in *A. breviloba*.

Angraecopsis tenuicalcar *Summerhayes sp. nov.*; ab *A. breviloba* Summerh. floribus paulo majoribus, pedicellis fere duplo longioribus, calcari cylindrico tenuissimo, pollinii stipitibus minus genuflexis; ab *A. ischnopo* (Schltr.) Schltr. petalis liberis anguste triangularibus, labelli lobis lateralibus brevissimis rotundatis, pollinii viscidio uno communi distinguitur.

Planta epiphytica, nana; caulis brevissimus, fere 1 cm. longus, radices numerosas flexuosas simplices applanatas 2–3 mm. latas emittens. *Folia* 2–3, cito decidua, ligulata, acuta, circiter 2.5 cm. longa et 3 mm. lata, subcarnosa, obscure viridia. *Inflorescentiae* dependentes vel patentés, tenues, 4–8 cm. longae, sublaxe multiflorae; pedunculus brevis, vaginis paucis instructus; rhachis teres, gracilis; bracteae 4–6 mm. distantes, vaginantes, obovatae, obtusae, circiter 2 mm. longae. *Flores* secundi, suberecti vel adscendentes, cremei, fragrantés; pedicellus cum ovario 7–8 mm. longus, filiformis. *Sepalum* intermedium anguste lanceolato-ellipticum, acutum, circiter 4 mm. longum, 1 mm. latum; sepala lateralia parallela et porrecta, ex ungue angusto curvatim lanceolata (vel anguste subspathulato-lanceolata), acuta, 6.75 mm. longa, 1 mm. lata. *Petala* libera, anguste lanceolato-triangularia, obtuse acuta, margine antica rotundato-dilatata, 4.5 mm. longa, basi 1.5 mm. lata; omnia tepala trinervia. *Labellum* leviter incurvatum, infra medium trilobatum, totum 5.5 mm. longum, inter lobos laterales fere 2 mm. latum; lobus intermedius lineari-subulatus, 3 mm. longus; lobi laterales brevissimi, triangulari-rotundati; cal-

car incurvatim dependens, cylindricum, tenuissimum, haud dilatatum, 10–12 mm. longum. *Columna* semiteres, circiter 1 mm. longa, androclinio leviter excavato; anthera fere hemisphaerica, antice haud producta; pollinia ovoidea, 0.35 mm. longa, stipitibus duobus leviter genuflexis teretibus polliniis aequilongis, viscidio uno communi oblongo postice leviter retuso 0.6 mm. longo convexo; rostellum breviter productum, lobis obtusis.

TANGANYIKA TERRITORY: West Usambaras, Shunie, on bole of tree at forest edge, March 1942, *Moreau 325* (TYPE).

Very similar in general appearance and basic floral structure to *A. breviloba* Summerh. especially the pollinarium, but easily recognised by the relatively long slender tapering spur and other minor points mentioned in the diagnosis. *A. tenuicalcar* strongly resembles *A. ischnopus* (Schltr.) Schltr. from the Cameroons, but that species has broadly triangular petals adnate to the lateral sepals, a strongly trilobed lip with long lateral lobes and two separate viscidia to the pollinia.

Angraecopsis amaniensis *Summerhayes sp. nov.*; affinis *A. tenuicalcar* Summerh. a qua floribus viridibus, sepalis praesertim lateralibus brevioribus, inter se aequalibus superne incrassatis, calcar crassiore, columna brevioris satis distinguenda.

Planta epiphytica, nana; caulis brevissimus, circiter 0.5 cm. longus, radices numerosas flexuosas simplices applanatas + 30 cm. longas, 2–4 mm. latas, griseo-virides emittens. *Folia* 1–2, cito decidua, usque ad 1.5 cm. longa, obscure viridia. *Inflorescentiae* dependentes vel patentes, 1.5–4 cm. longae, subdense pluri- ad multiflorae; pedunculus brevis, usque ad 1 cm. longus, vaginis paucis instructus; rhachis leviter fractiflexa, gracilis; bracteae 1.5–3 mm. distantes, vaginantes, triangulari-ovatae, leviter acuminatae, circiter 2 mm. longae. *Flores*

secundi, erecto-patentes, pallide virides; pedicellus cum ovario 6–7 mm. longus, gracilis. *Sepalum* intermedium e basi pseudo-unguiculata late lanceolatum, acutum, 4 mm. longum, 1.75 mm. latum; sepala lateralia dorsali similia sed obliqua, 4.5 mm. longa, 1.6 mm. lata. *Petala* basi sepalis lateralibus per 0.5 mm. adnata, oblique lanceolata, margine antica supra basin leviter dilatata, 3.75 mm. longa, 1.6 mm. lata. Omnia *tepala* superne incrassata, saccis crystalliferis instructa. *Labellum* leviter recurvatum, medio vel infra medium trilobatum, totum 4 mm. longum, inter lobos laterales circiter 2 mm. latum; lobus intermedius linearis, carnosus, 2.25 mm. longus; lobi laterales brevissimi, rotundati; calcar incurvatim dependens, cylindricum, gracile, haud dilatatum, 10 mm. longum. *Columna* brevis, circiter 0.6 mm. longa, apice truncata, androclinio leviter excavato; anthera hemisphaerica, antice haud producta; pollinia fere globosa, 0.6 mm. diametro, stipitibus duobus genuflexis teretibus polliniis satis brevioribus, viscidio uno communi fere oblongo antice leviter angustato postice leviter retuso 0.7 mm. longo convexo; rostellum breviter productum, lobis obtusis.

TANGANYIKA TERRITORY: East Usambaras, Amani, 900 m. alt., on exotic coniferous trees, July 1941, *Moreau 68* (TYPE).

This species strongly resembles *A. tenuicalcar* Summerh. in general appearance and in floral structure, and has the same type of pollinarium. However, the inflorescences are shorter, the flowers pale green and unscented while the sepals are approximately equal in length, instead of the laterals being much longer than the dorsal as in *A. tenuicalcar*. The spur, though of about the same length, is distinctly thicker. A striking feature is the thickened distal portions of the tepals which are furnished with numerous crystal sacs appearing as even denser points in the tissue.